

Bicarbonate

methods

- single center, open-label, randomized, prospective, parallel group study
- July 2003-march 2006
- 2 years follow up
- urine 24h
- CrCl 30 to 15
- exclusion
 - malignant disease
 - morbid obesity
 - cognitive impairment
 - chronic sepsis
 - poorly controlled BP
- Bic 3x600 jusqu'à ce que bic > 23
- pas de sevelamer ou calcium carbonate
- only calcium acetate
- Clinical measurements
- nutritional assessment
- dietary analysis
- statistical analysis

metabolic acidosis

- stunted growth in children
- loss of bone
- loss muscle mass
- negative nitrogen balance
- ? acceleration of progression of CKD
- protein-energy wasting (PEW)
- evidence in dialyse that correction of acidosis helps...
- increased protein catabolism
 - upregulation of ubiquitin-proteasome system
 - excessive oxidation of branched-chain aa
 - reduced synthesis of visceral proteins
- études chez le rat
- oral sodium bicarbonate
- étude chez l'homme
 - reduced protein catabolism
 - reduced ammonia production
 - reduced tubular damage

hypothesis

- oral bicarbonate
- Bic entre 16 et 20 mmol/l
- < 3 ml/min/an
- attenuation peioration CrCl

Discussion

- progression 1 ml/min vs > 2.5 ml/min
- augmentation HTA
- augmentation oedème
- retention sodium
- increased ammonia production
- complement cascade activation
- injurious to tubulointerstitium
- hypothèse
- courbe en U (< 17 et > 27)
- recommandation en dialyse > 22
- ∅ cochrane (pas assez d'études)
- bicarbonate a un effet sur l'appétit

Results

- 1 an
- 184 incident patients with CKD and low bic
- 134 randomized
 - oral sodium bicarbonate supplementation 1.82 ± 0.8 g/d
 - thumbs up augmentation bic
 - thumbs down augmentation Na
 - BP same
 - decline CrCl 1.88
 - standard treatment
 - decline CrCl 5.93 ml/min
 - p < 0.05
 - augmentation ttt anti-hypertenseur
- nutritional status
 - ↑ dietary protein intake (bic)
 - decreased protein catabolism?
 - ↑ nPNA (control)
 - ↑ albumin (bic)
 - ↓ K (bic)